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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* GARY L. HEIMAN

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Appeal 2009-009257  
Application 10/696,683  
Technology Center 1700

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Decided: March 17, 2010

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Before MICHAEL P. COLAIANNI, KAREN M. HASTINGS, and  
JEFFREY B. ROBERTSON, *Administrative Patent Judges*.

COLAIANNI, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the Examiner's non-final rejection<sup>1</sup> of claims 1, 3, 14, 16, 33, and 36 through 40. Claims 5 through 8 and 13, which are the other claims pending in this

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<sup>1</sup> Appellant's statement at page 4 of the Appeal Brief that the appeal is from the Examiner's Final Office Action (i.e., final rejection) is harmless error since it is apparent from the record that the claims on appeal have been twice

application, stand withdrawn from consideration by the Examiner. We have jurisdiction pursuant to 35 U.S.C. § 6.

We AFFIRM.

#### STATEMENT OF THE CASE

The subject matter on appeal is directed to a woven fabric sheeting.  
Claim 1 is illustrative:

1. A woven fabric sheeting, comprising:

a plurality of warp yarns; and

a plurality of filling yarns;

the warp yarns and the filling yarns being woven together in a weave pattern which includes a plurality of warp yarn floats repeating along substantially the length of respective ones of the warp yarns in an x/y float pattern, wherein each of x and y are whole numbers greater than zero (0), x is at least two (2), and x is greater than y,

at least one of the filling yarns being a synthetic multifilament yarn and at least one of the warp yarns being a spun yarn of natural fibers.

As evidence of unpatentability of the claimed subject matter, the Examiner relies upon the following references:

Collier	5,487,936	Jan. 30, 1996
Heiman	5,495,874	Mar. 5, 1996
Lovingood	2003/0190853 A1	Oct. 9, 2003
Love	2004/0229538 A1	Nov. 18, 2004

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rejected. 35 U.S.C. § 134(a)(“[a]n applicant for a patent, any of whose claims has been twice rejected, may appeal from the decision of the primary examiner to the Board of Patent Appeals and Interferences.”).

Tortora, Phyllis, *Fairchild's Dictionary of Textiles* 7th edition, p. 596.  
(Fairchild Publications, 2003) (Hereinafter "Fairchild's Dictionary").

The Examiner maintains the following rejections:

1) Claims 1, 3, 14, 16, 33, 35, and 38-40 under 35 U.S.C. § 102(b) as anticipated by Love;

2) Claims 36 and 37 under 35 U.S.C. § 103(a) as unpatentable over Love;

3) Claims 1, 3, 14, 16, 33, and 36-40 under 35 U.S.C. § 103(a) as unpatentable over Collier and Lovingood;

4) Claims 1, 3, 14, 16, 33, and 36-40 under 35 U.S.C. § 103(a) as unpatentable over Heiman and Fairchild's Dictionary<sup>2</sup>; and

5) Claims 1, 3, 14, 16, 33, 36 and 37 under nonstatutory obviousness-type double patenting over claims 1-21 of Heiman and Fairchild's Dictionary.<sup>3</sup>

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<sup>2</sup> The additional rejections of all the appealed claims in rejections (3) and (4) (i.e., rejection (3) over Collier and Lovingood and rejection (4) over Heiman and Fairchild's Dictionary) amount to rejections that are cumulative to rejections (1) and (2) over Love since the rejections are based on similar claim construction and the cited prior art applied in each of the Examiner's rejections disclose substantially the same information. (See Ans. 3-6). *The Manual of Patent Examining Procedure* (MPEP) § 706.02 (8th Ed. rev. 6, Sept. 2007) provides guidance to Examiners regarding applying the best available prior art and advises that "[p]rior art rejections should ordinarily be confined strictly to the best available art" and that "[m]erely cumulative rejections . . . should be avoided." In our case, Rejections (3) and (4) do not follow this MPEP guidance. Accordingly, we vacate rejections (3) and (4) such that these rejections are set aside and no longer exist.

*Rejection (1): The § 102 rejection over Love*

Appellant's arguments focus on claims 1 and 33. Accordingly, we address Appellant's arguments regarding the rejections with respect to claims 1 and 33 only. *See* 37 C.F.R. § 41.37(c)(1)(vii).

### ISSUE

Has Appellant identified reversible error in the Examiner's determination that the phrase "at least one of the warp yarns being a spun yarn of natural fibers" recited in claims 1 and 33 does not exclude Love's synthetic fiber as an additional component in its spun yarn? We decide this issue in the negative.

### FINDING OF FACT

1. Appellant does not specifically dispute the Examiner's finding that Love teaches a spun yarn made from a blend of natural and synthetic fibers. (*Compare* Ans. 3 with App. Br. 12-14 and Reply Br. 2-4).

### PRINCIPLES OF LAW

The term "comprising" is open-ended and does not exclude additional, unrecited elements. *In re Baxter*, 656 F.2d 679, 686-87 (CCPA 1981). "[I]t is well-established that '[c]omprising' is a term of art used in claim language which means that the named elements are essential, but other elements may

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<sup>3</sup> With respect to rejections (3) through (5), the Examiner's rejections of claim 35 are harmless error since it is apparent from the amendment dated March 29, 2007, that this claim has been canceled.

be added and still form a construct within the scope of the claim.” *In re Crish*, 393 F.3d 1253, 1257 (Fed. Cir. 2004).

## ANALYSIS AND CONCLUSION

Appellant argues that

Claims 1 and 33 call for . . . [a] warp yarn . . . made solely of natural fibers. . .

There is no teaching in Love of a woven fabric having a spun yarn . . . made solely of natural fibers. Rather, Love, at best, discloses a spun yarn that is a blend of natural and synthetic fibers.

(App. Br. 12 and 13). Contrary to Appellant’s argument that “[c]laims 1 and 33 call for . . . [a] warp yarn . . . made solely of natural fibers,” Appellant’s open-ended transitional claim language “comprising” in claims 1 and 33 does not exclude additional fibers, such as Love’s synthetic fiber, as a component in its spun yarn. *Baxter*, 656 F.2d at 686-87. Therefore, it is immaterial whether Love teaches a synthetic fiber as a component in its spun yarn because Appellant has not limited the claims to require that the spun yarn be formed from only natural fibers.

Thus, it follows that Appellant has not identified reversible error in the Examiner’s determination that the “natural fiber” phrase recited in claims 1 and 33 does not exclude Love’s synthetic fiber as an additional component in its spun yarn.

*Rejection (2): The § 103 rejection over Love*

Appellant argues claims 36 and 37, which are all of the rejected claims. Accordingly, we address Appellant's arguments regarding these claims.

ISSUE

Has Appellant identified reversible error in the Examiner's determinations that Love would have suggested the inventions recited in claims 36 and 37? We decide this issue in the negative.

ADDITIONAL FINDINGS OF FACT

2. The Examiner determines and Appellant does not specifically dispute that it would have been obvious to "increase the float length to a 3 x 1 or 4 x 1 float structure to have longer floats on the surface of the fabric and produce a smoother surface structure in the finished product." (*Compare* Ans. 4 *with* App. Br. 13-14 and Reply Br. 2-4).
3. Love teaches that "[t]he fabrics can be woven in any conventional weave construction, including . . . twill weave, and the like." (Love, ¶ [0015]). Love also teaches that "[s]ome [c]ommon [f]abric [c]onstructions" include 3 x 1 twill weave and 4 x 1 satin weave fabric constructions. (Love, ¶ [0025]).

ADDITIONAL PRINCIPLES OF LAW

"[W]hen a patent 'simply arranges old elements with each performing the same function it had been known to perform' and yields no more than one would expect from such an arrangement, the combination is obvious." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007)(quoting *Sakraid v. Ag Pro, Inc.*, 425 U.S. 273, 282 (1976)).

It is well settled that objective evidence must be factually supported by an appropriate affidavit or declaration. See *In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984).

### ANALYSIS AND CONCLUSION

Appellant argues that 1) “to *wholly replace* synthetic fiber containing yarns with natural fiber yarns as well as completely alter its weave pattern . . . [is] not only nonobvious but would destroy the intended purpose of Love and/or change the principle of operation of the invention;” 2) a yarn made from “*solely* . . . natural fibers will not maintain its crimp using this heat setting process, thus, using only natural fibers for one or more of the warp yarns would change the principle of operation of the Lovingood [sic: Love] fabric and/or the fabric sought by Lovingood [sic: Love] would not be obtained;” and 3) because Love teaches using *synthetic fibers*, “Love . . . actually teaches away from the necessary modifications [i.e., replacing Love's synthetic fibers with natural ones] to make the woven fabric.” (App. Br. 13 and 14)(citations omitted) (emphasis added).

We are unpersuaded by these arguments because they are incorrectly premised on *wholly* replacing Love's synthetic yarn with a natural one to arrive at the claimed inventions. In reference to our above discussion, the claims do not exclude Love's synthetic fiber as a component in the spun yarn required by claims 1 and 33. Thus, wholly replacing Love's synthetic yarn with a natural one is not required to arrive at the claimed inventions.

Indeed, the Examiner does not rely on Love to wholly replace its synthetic yarn with a natural one. In this regard, the Examiner's



modification of Love is directed to employing the float patterns required by claims 36 and 37. (FF 2). Accordingly, Appellant's arguments are unpersuasive of reversible error.

Appellant also argues that Love would not have suggested the claimed inventions because "there simply is nothing in Love that would lead one to increase the float pattern of the warp yarns to 3x1 or 4x1." (App. Br. 14). Appellant, however, does not specifically dispute the Examiner's reason for modifying Love to arrive at the claimed inventions.

In this regard, the Examiner determines and Appellant does not specifically dispute that it would have been obvious to "increase the float length to a 3 x 1 or 4 x 1 float structure to have longer floats on the surface of the fabric and produce a smoother surface structure in the finished product." (FF 2).

Moreover, Love, like Appellant, teaches that "[t]he fabrics can be woven in any conventional weave construction, including . . . twill weave, and the like." (FF 3). Love also teaches that "[s]ome [c]ommon [f]abric [c]onstructions" include 3 x 1 twill weave and 4 x 1 satin weave fabric constructions. (FF 3). Therefore, Love suggests using a 4 x 1 satin weave or a 3 x 1 twill weave to make the fabrics.

Furthermore, we determine that the use of a 3 x 1 or 4 x 1 fabric construction as the conventional weave construction is nothing more than the predictable use of a prior art element (i.e., a 3 x 1 or 4 x 1 fabric construction) according to its established function (e.g., forming fabrics having a conventional weave construction). *KSR*, 550 U.S. at 417. Accordingly, Appellant's argument is unpersuasive of reversible error.

Appellant also argues that there is no reason to modify Love in the Reply Brief. Specifically, Appellant argues that

according to [the] Examiner, one having skill in the art would be motivated to modify Love to create the presently claimed float patterns. This would be contrary to the stated purpose of Love, however, which is to create an elastic fabric using non-elastomeric yarns. To create the elastic effect, Love heat-sets the synthetic fiber yarns so as to maintain the yarn's crimp. One factor affecting yarn crimp is the float pattern. Yarns in a woven fabric are crimped every time a warp yarn passes over or under a fill yarn, and vice versa. Thus, in a woven fabric having a 1 x 1 weave pattern, a warp yarn is crimped at every fill yarn. As the float pattern increases, the amount of crimp necessarily decreases. Therefore, the amount of yarn crimp and elasticity in a fabric having a 3 x 1 or 4 x 1 float pattern will be significantly less than the amount of crimp and elasticity in a 1 x 1 or even 2 x 1 float pattern, which is contrary to the stated purpose of Love.

(Reply Br. 3-4) (Citations omitted). This argument is undermined by Love's express teaching that 3 x 1 and 4 x 1 are common fabric constructions that may be used with Love's invention. (FF 3). Additionally, Appellant has not provided any persuasive evidence to support the argument that a 3 x 1 or a 4 x 1 float pattern would not result in an elastic fabric having an elastic effect. *See De Blauwe*, 736 F.2d at 705.

Thus, it follows that Appellant has not identified reversible error in the Examiner's determinations that Love would have suggested the inventions recited in claims 36 and 37.

*Rejection (5): The nonstatutory obviousness-type double patenting rejection*

Appellant's arguments focus on features recited in claims 1 and 33. Accordingly, we address Appellant's arguments regarding the rejection with respect to claims 1 and 33 only. *See* 37 C.F.R. § 41.37(c)(1)(vii).

ISSUE

Has Appellant identified reversible error in any of the Examiner's determinations that the combination of the subject matter of claims 1-21 of Heiman and the disclosure in Fairchild's Dictionary would have suggested the inventions recited in Appellant's claims 1 and 33? We decide this issue in the negative.

ADDITIONAL FINDINGS OF FACT (FF)

4. Appellant does not specifically dispute the Examiner's findings regarding the subject matter of claims 1-21 of Heiman or the disclosure in Fairchild's Dictionary. (*Compare* Ans. 6 with App. Br. 12-21 and Reply Br. 2-8). In this regard, Appellant does not specifically dispute the Examiner's findings that

US 5,495,874 claims a woven fabric having continuous polyester filament filling yarns and cotton spun warp yarns. However, US 5,495,874 fails to claim a 2/1 twill weave structure. Fairchild's discloses that twill weaves are a basic twill characterized by yarns that float over or under at least two consecutive picks (definition). The smallest repeat for a twill weave is a 2/1 twill structure (definition). Further, the twill weave is used to produce a strong, durable, firm fabric (definition).

*Id.*

5. Appellant does not specifically dispute the Examiner's reason for combining the subject matter of claims 1-21 of Heiman and the disclosure in Fairchild's Dictionary. (*Compare* Ans. 6 with App. Br. 12-21 and Reply Br. 2-8). In this regard, Appellant does not specifically dispute the Examiner's determination that "it would have been obvious to one having ordinary skill in the art to substitute a 2/1 twill weave for the plain weave structure disclosed by Heiman since twill weaves are a commonly known weave structure which is known to produce a strong, durable fabric." (Ans. 6).

#### ADDITIONAL PRINCIPLES OF LAW

"[O]bviousness-type,' double patenting is a judicially created doctrine adopted to prevent claims in separate applications or patents that do not recite the 'same' invention, but nonetheless claim inventions so alike that granting both exclusive rights would effectively extend the life of patent protection." *Perricone v. Medicis Pharm. Corp.*, 432 F.3d 1368, 1373 (Fed. Cir. 2005). "It is the claims, not the specification, that define an invention. . . . And it is the claims that are compared when assessing double patenting." *Ortho Pharm. Corp. v. Smith*, 959 F.2d 936, 943 (Fed. Cir. 1992).  
As stated in *In re Longi*:

[A] double patenting of the obviousness type rejection is 'analogous to [a failure to meet] the non-obviousness requirement of 35 U.S.C. § 103,' except that the patent principally underlying the double patenting rejection is not considered prior art. . . . Therefore, our analysis concerning the correctness of . . . [the obviousness-type double patenting rejection] parallels our previous guidelines for a § 103 rejection.

759 F.2d 887, 892 n.4 (Fed. Cir. 1985) (quoting *In re Braithwaite*, 379 F.2d 591, 600 n. 4 (CCPA 1967)).

## ANALYSIS AND CONCLUSION

Appellant argues that the "Examiner . . . must show that it would have been obvious to modify the genus, i.e., Heiman's woven fabric sheeting, to make the subgenus or species, i.e., Appellant's woven fabric sheeting with its specific  $x > y$  float pattern construction." (App. Br. 21).

Appellant also argues that

there is not even a single mention of float patterns, let alone warp float patterns, or of "twill" anywhere in Heiman. Thus, there is nothing in Heiman that suggests it is applicable to weave constructions ( $x > y$ ) of the type involved here. Nor does the mere mention in the Fairchild dictionary of a 2x1 twill weave add anything of value, for that has nothing to do with the plain weave construction of Heiman. . . . Here, Examiner is taking two independently known elements and, with no sound reasoning, inappropriately combining them into an obviousness rejection.

(App. Br. 19; *see also* App. Br. 20).

In addition, Appellant argues that the Examiner relies upon impermissible hindsight reconstruction because there is no reason to arrive at the claimed inventions. (App. Br. 19). Specifically, Appellant argues that the "twill weave definition [relied upon by the Examiner] clearly states that 'one of the most popular weaves . . . [is] even sided twill, two up, two down [2x2].' Thus . . . [there is no reason to] choose a 2x1 twill weave (or 3x1 or 4x1 for that matter) over the more common 2x2 twill weave." (App. Br. 19).

Appellant, however, does not specifically dispute the Examiner's determinations regarding the subject matter of claims 1-21 of Heiman and the disclosure in Fairchild's Dictionary or the Examiner's specific reason for combining the subject matter of claims 1-21 of Heiman and the disclosure in Fairchild's Dictionary regarding twill patterned fabrics.

In this regard, Appellant does not specifically dispute the Examiner's finding that the subject matter of claims 1-21 of Heiman disclose a woven fabric, which is known to have a weave structure, made from "continuous polyester filament filling yarns and cotton spun warp yarns. . . . [and that] Fairchild[] discloses . . . [that] [t]he smallest repeat for a twill weave is a 2/1 twill structure [i.e., having a 2/1 float pattern] (definition). Further, the twill weave is used to produce a strong, durable, firm fabric (definition)." (FF 4).

In addition, Appellant does not specifically dispute the Examiner's determination that "it would have been obvious to one having ordinary skill in the art to substitute a 2/1 twill weave for the plain weave structure disclosed by [claims 1-21 of] Heiman since twill weaves are a commonly known weave structure which is known to produce a strong, durable fabric." (FF 5). Accordingly, Appellant's arguments are unpersuasive of reversible error.

Moreover, given the above factual findings (i.e., FF 4 and 5), we determine that it would have been obvious for one of ordinary skill in the art to employ Fairchild's Dictionary's 2/1 twill weave structure [i.e., one having a 2/1 float pattern] as the weave structure of Heiman's woven fabric sheeting. In this regard, the use of Fairchild's Dictionary's 2/1 twill weave structure [i.e., one having a 2/1 float pattern] is nothing more than the

predictable use of a prior art element (i.e., a twill weave structure having a 2/1 float pattern) according to its established function (e.g., to produce a strong, durable fabric). *KSR*, 550 U.S. at 417.

Appellant also argues that

Appellant's woven fabric sheeting, with its plurality of warp yarn floats repeating along substantially the length of respective ones of the warp yarns in the claimed  $x > y$  float pattern, is not an obvious variation of any of claims 1-21 of the Heiman patent. More specifically, as explained above, the disclosure of Heiman involves a 1x1 plain weave ( $x = y = 1$ ), and thus, does not teach the  $x > y$  float pattern as presently claimed, nor would it have been obvious to modify Heiman to achieve the claimed invention.

(App. Br. 20). In addition, Appellant argues that

Appellant's claimed invention is an improvement over Heiman's earlier plain weave construction. . . . [the] Examiner is combining, improperly, apples ( $x > y$  weaves) with oranges ( $x=y$ ) weaves. If Heiman were woven using the  $x > y$  weave of the Fairchild dictionary, a completely new fabric would be created, not just a mere modification of the Heiman fabric as disclosed therein. Creating a wholly new fabric is much more than an obvious modification and is simply not a proper basis for an obviousness rejection.

(App. Br. 18-19; *see also* App. Br. 20). It is well settled that "[i]t is the claims, not the specification, that define an invention. . . . And it is the claims that are compared when assessing double patenting." *See Ortho Pharm. Corp.*, 959 F.2d at 943. In our case, Appellant incorrectly focuses on Heiman's Specification and not on Heiman's claims in arguing the double patenting rejection. For example, claims 1-21 of Heiman broadly claim a

“woven fabric sheeting” and do not recite a “plain weave” having an  $x = y$  weave construction.

Even interpreting the claim language “woven fabric sheeting” in light of Heiman’s disclosure does not require that the fabric be a  $1 \times 1$  (i.e.,  $x=y$ ) weave construction. Heiman only indicates that a  $1 \times 1$  weave construction is “preferred” not that the claimed “woven fabric sheeting” is limited to such a weave (Heiman, col. 3, ll. 64-65).

Moreover, in reference to our above discussion, Appellant does not specifically dispute the Examiner's findings regarding the subject matter of claims 1-21 of Heiman or the teachings of Fairchild's Dictionary. Nor does Appellant specifically dispute the Examiner's reason for combining the subject matter of claims 1-21 of Heiman and the teachings of Fairchild's Dictionary regarding twill patterned fibers to arrive at the claimed invention. Specifically, Appellant's argument that a reason is lacking because the proposed modification would have resulted in a completely different fabric fails to address the Examiner's stated reason for the modification: to provide a strong, durable, and firm fabric. Accordingly, Appellant's argument is unpersuasive of reversible error.

Thus, it follows that Appellant has not identified reversible error in any of the Examiner's determinations that the combination of the subject matter of claims 1-21 of Heiman and the disclosure in Fairchild's Dictionary would have suggested the inventions recited in Appellant's claims 1 and 33.



**ORDER**

For the above reasons, the Examiner's rejections (1), (2), and (5) are sustained. The Examiner's cumulative rejections (3) and (4) are vacated.

Accordingly, the Examiner's decision is affirmed.

**TIME PERIOD**

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(2009).

**AFFIRMED**

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